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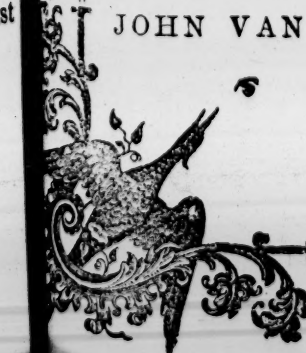
QUADRUPEDS, BIRDS, REPTILES, FISHES AND INSECTS.

No. CCCXVII. or S.S. No. 26.

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E. Newman, 9, Devonshire Street, Bishopsgate.

Notes of a Stay at Prussia Cove. By THOMAS CORNISH, Esq.

I CAME to this little cove (opening S.E.), for a few week's fishing, four weeks ago, and from that time to the present we have only had two periods, of less than ten hours each, during which the wind was anything west of S.W. or east of south—a remarkable thing for August month; consequently I have only been able to do rough-weather fishing.

I have taken the "small-eyed" or "painted" ray (*Rayii microcellata*), in numbers which justify one in saying it is common here. Altogether I have taken eighteen specimens, of which three were males; the two largest of the whole were males: all were taken by bait of pilchard and by hook: I have not shot my spillers once without taking some. I have in former years taken this same ray in this cove, but not so numerously. It is well known to the fishermen here by the name of "the owl." I have had two specimens (a male and female) preserved for our Museum; and, on examining them since they have been set up, I observe that the row of spines which extends from just behind the eyes to the origin of the caudal fin (or rather to the origin of the dorsal fin which immediately precedes the upper lobe of the caudal) is not single throughout, but here and there breaks up into little bunches of small spines. The male also has, on the first convex curve of the anterior margin of the wing, a bunch of spines (I might with propriety say hooks), very fine, arranged in irregular rows, and in my specimens—fourteen in number—it also has two rows of similar spines or hooks just inside the extreme margin of each wing. The female has not any of these spines.

A specimen of the short sun-fish (*Orthogoriscus mola*) has been brought on shore since I have been here. It was three feet four inches in length over all: four feet one inch from tip to tip of its dorsal and ventral fins, and two between the bases of the same fins. The head was, as usual, the broadest portion of the fish, and was nine inches broad. The head was one foot two inches in depth through the eye, which was nearly two inches in diameter. The eye appeared to be larger, and the whole shape of the fish more triangular than those of the other specimens which I have seen, but I think these were merely accidental variations.

When I could not get to sea I amused myself by catching the common shanny, and observing some of its habits. Not only are these



little fish in the constant habit of basking on the rocks out of water near the pools left by the receding tide, but they actually and habitually take refuge in crannies which are left altogether high and dry, and may be found there of all sizes just as readily as in the pools or under stones, when once one learns where to look for them. They have the power of regular progression upon land. On the 5th instant I put four into an earthenware pan which has done duty here as my vivarium, and put the pan on a table in a passage near the door of a sitting-room which was left open. On going to them after dark I found the largest shanny missing, and on search I found it jammed in head-first behind the leg of a chair in the sitting-room, apparently well satisfied with its place of refuge. To get from the pan to this place the shanny must have escaped from the pan, tumbled over the table on to an oak floor, and crossed about a foot of this floor, a door-mat and a carpet. By the shortest possible route it must have travelled over four feet two inches of ground. I restored the fish to the pan, and it was no worse for its journey next day. I took another and smaller fish, and put it on a table covered with a table-cloth, over which it at once began to move. It progressed by bending its tail alternately side and side, and then using it on each turn as a fixed base whilst it jerked itself forward by its ventrals, which, as you know, are more like two fingers tied together by a membrane than like fins. It went forward in a straight line and rapidly. It cleared nearly its own length at each step, and got over three times its length in each second of time. When held by the tail it sprang violently around, evidently by the action of its ventrals. It repeated these performances on the carpeted floor; but one of larger size, tried on the oak floor, failed to go so fast. It did not clear half the ground per step which the smaller one did, which I attribute to the superiority of holding-ground afforded to the smaller one by the cloth. This fish bites fiercely, holding on like a bull-dog. I took several specimens, having a ground colour of black over the back and dirty white on the belly; dull-looking things compared with the others, but not distinct in species.

I captured two specimens of Montagu's blenny (*B. Montaguï*) and one Cornish sucker (*Lepidogaster cornubiensis*), which held on to the side of my pan by its sucker long after it was dead; indeed until it was forcibly removed.

I have obtained besides pollack, conger, scad (or horse mackerel), bream, gray gurnard, sapphirine gurnard (or tub), rough dab, homely ray, *Cottus bubalis*, blue shark, picked dog-fish, basse, atherine, gray

mullet, Ballan wrasse, the small green wrasse, and, last but not least, turbot; but these are too common to require further notice, and are only half the fish I ought to have listed.

I was called to see two sword-fish (a large one and a small one) playing, but each time arrived too late. Porpoises, of course, we saw.

I obtained a specimen of the long-armed munida (*M. Rondeletii*), which was washed on shore, in some of the heavy weather, dead, but perfect, except the exterior antennæ. The specimen was small, and deformed by a protuberance of the shell on the right-hand side of the branchial region of the carapace, but was certainly identical with the *M. Rondeletii* of Professor Bell.

I obtained from crab-pots shot deep, and after five days' heavy weather, the long-legged spider-crab (*Stenorhynchus Phalangium*).

I took *Xantho florida* abundantly, mature, but not large; one specimen was just hardening, after casting its shell. I took, besides, many crabs (indeed as many as I wished) of smaller size, which puzzled me. They agreed mainly with *X. florida*, but some had fingers distinctly brown, and not black; some having black fingers had minute beading on the anterior edge of the carapace between the eyes; some having black fingers and some having brown fingers, had each of them a seam or dotted line, but not a groove down the outer side of the moveable finger. Traces of this seam were to be seen in some of the largest specimens. The shape of the carapace and the ciliation of the hinder legs agreed with those of *X. florida*. Amongst these small crabs the variations of colour were very remarkable—self-coloured, of a chocolate-flint tint, and again like gray flint, dark brown with three regular white spots, and one specially was self-tinted mauve with a narrow white border all round, so that when at rest it looked precisely like one of the bits of broken water-worn blue shell which are common on every beach. Put into my pan they all exhibited precisely the same peculiarities of habit. The large ones appeared to find themselves without sufficient scope and lay still, but the smaller ones, without exception, placed themselves in ambush, some under stones and weed: the flint-coloured ones, the white-spotted and the gray buried themselves in the small pebbles, and lay with just the anterior edge of the carapace and the tops of their large arms (closely folded) exposed on a level with the surrounding pebbles, in which position they looked very much indeed like bits of flint and pebbles, and were manifestly ready to spring on any prey which came within reach.

The pretty little mauve-coloured one lay with its hind legs only concealed, and its whole carapace level with the surrounding pebbles. In all the specimens which I captured or saw, I noticed the tendency to be perfectly motionless, with legs and arms tucked in under them on being alarmed. They simulated rather the pebbles around them than death in doing this. The colours of all my specimens have faded in drying. I have kept them for reference. It is certain that none of these were *X. tuberculosa*: it is equally certain that they intermingled some of the distinctions usually considered specific between *X. florida* and *X. rivulosa*. It is notoriously difficult to distinguish between these two species. I at present incline to say that all my specimens are *X. florida* in various stages of development, but the differences existing in my various specimens prove the species worthy of careful attention.

The common shore crab (*C. mænas*) was very clever also in burying itself in sand, using its broad and partly-finned hind legs as shovels; and some of its larger and finer specimens showed a close approach in these finned legs and feet to the true swimmers.

The hairy porcelain crab (*P. platycheles*) is common here, as also are of course lobster, crayfish, spinous spider-crab (*M. Squinado*) and the common edible crab (*C. Pagurus*); of these last I obtained several specimens in which the female had retired to a hole in the rocks to cast her shell, and had been sought by the male, and I took the old shell of the female, the female herself just hardening, and the male crab in his old shell altogether.

I do not know anything about Conchology, and therefore do not know whether a shell identified for me by a friend as *Murex purpurea* is rare or otherwise; but the fishermen here tell me that it has not been seen on these shores for several years, and I can say of my own knowledge that it came on this occasion in a large "school." There was none on the beach up to Tuesday, September 3rd, but there was a spell of fine weather, with a very smooth sea in that way, and on Thursday, the 5th, the beach was strewn with the shell, perfect and broken, and in several specimens I secured the occupant with the shell. Some days, however, before this I had picked up on the sands a curious bladder-like substance, about an inch and a half long, having three lobes, which I think I can identify with the bladder of the *M. purpurea* divorced from its shell and exhausted of air, and which, if I am correct, was a foreboder of the approach before the wind of the shell from the southward.

I have secured also some specimens of a mollusk called by the fishermen here the "bladder-fish," which I cannot yet identify: I shall probably trouble you again about this.

I have also noted a large cuttle-fish which I think to be *Octopus Cuvieri*, but which I have not yet identified: it is the largest cuttle-fish I have ever seen.

The cliffs here abound in wild cabbage, which I have tried as a vegetable and found rank, but very palatable when treated with vinegar: the natives tell me it is much more tender and less bitter in spring.

THOMAS CORNISH.

Prussia Cove, Mount's Bay,
September 9, 1867.

The distinguishing Characters of some nearly-allied Species of British Birds. By J. EDMUND HARTING, Esq., F.L.S.

"WHATEVER theories we may hold as to the existence of species in nature, and as to what constitutes them, in practice it must for the present, we imagine, be left for naturalists to receive or reject them according to their own private judgment. But at the same time, where constant differences, however small, can be observed between particular groups of organic forms, we maintain that these constant differences are worthy of observation, however variable be the value assigned to them as specific characteristics. Accordingly we consider that those who neglect to observe them are rather impeding than advancing the progress of Natural History, and are not fulfilling the duties which belong to them as natural philosophers. This last, be it remembered, is really a matter of no small importance, since the popular estimate of a science like natural history, whose results are comparatively barren in utilitarian application, is always proportionate to the opinion formed of its student's abilities."*

Endorsing the opinions expressed in the foregoing extract, it will be our aim in the following pages to point out the distinguishing characters of some nearly allied species of birds, which from their *general* resemblance are confounded or overlooked by the casual observer. In doing so we shall confine our attention to those only which are at present included in the British Avifauna.

* 'The Ibis,' January, 1862, p. 53.

Commencing with the Raptores, it may be observed that between the hawks and falcons, properly so called, and the true eagles, the chief distinguishing marks are the form and shape of the bill and the length of the outer feathers in the wing. The bill of an eagle is comparatively long, terminating in a hook, whereas that of the falcons and hawks is short, and begins to bend from the base. In an eagle, the first second and third feathers of the wing are shorter than the fourth and fifth; whereas in the hawks the second feather is the longest, and the first and third of nearly equal length, and in the true falcons the first feather is the longest. There may be exceptions to this rule, but generally speaking it is sufficiently correct for practical purposes.*

Golden and Whitetailed Eagles.—A good distinguishing character in the golden and whitetailed eagles is that the golden has the legs feathered to the toes, while the whitetailed eagle has the tarsus bare. The number of scales on the toes also differ in each: the golden eagle has three on each toe; the whitetailed has eight on the first and third, and nine on the middle toe.

Greenland and Iceland Falcons.—Perhaps no question connected with the European avifauna has provoked more discussion than that of the three great northern falcons. To take even a glance at all that has been written upon this topic would not only exceed the limits of the present paper, but it would, moreover, be an unnecessary repetition, inasmuch as a very able review of the subject appeared in the 'Ibis' for January, 1862 (pp. 43-53), and to this we take leave to refer our readers. We may, however, so far enter upon the question as to point out the distinguishing characters of the Greenland and Iceland falcons, since this properly falls within the scope of the present essay, and will be best achieved by presenting the following short extract from the able review to which we have referred:—"It is always easy to determine not only whether any specimen is immature or adult, but also to which of the two forms it may belong. In the young of both birds, the general character of the markings is that of streaks running *along* the shaft of the feather, while in the old ones they are as invariably found to be running *across* the shaft. This is all that is absolutely necessary to distinguish between them, though other equally unmistakable signs may be observed if looked for. One of these, however, the colour of the cere, legs and feet (which in the young are bluish or lead-colour, but in the old birds are tinged with yellow), is not always

* Stanley's 'History of Birds,' sixth edition, p. 122.

to be trusted in living examples which have been kept long in captivity; for confinement, and perhaps the want of perfectly fresh food, seems often to interfere with the natural development of colour in those parts. To distinguish between the two *forms* can scarcely be said to be more difficult. In the first place, the bills and claws of the Greenland bird, seem to be in life always white, or nearly so, while in the Iceland the same parts are more or less dusky horn-colour. It occasionally happens however that, on a cursory inspection of dried specimens of the Greenland race, these organs present a somewhat dark appearance, but this will be found on closer inspection to be merely the effect of extravasated blood. Another character is, that though there is very considerable variation between individual birds of either form, it will always be found that in the Greenland falcon, the white is, as it were, the ground colour of each feather on which the dark marking is displayed, whereas in the Iclander the ground is dark with a light marking thereon. In other words, in the Greenland bird at all ages the prevailing hue is white, while in the Iclander it is dark, being brown or gray, according as the specimen is young or old." Amongst the smaller falcons and hawks there are no two species, we imagine, which could by any means be confounded, at all events in the adult state, and we therefore pass on to the owls. Here again on reviewing the British species of this genus it appears that there is but one about which any remarks need be offered.

Little Owl.—The little owl, which is occasionally seen in England, is sometimes confounded with the Swedish little owl, which has not been found in this country. The latter has its toes thickly covered with downy hair-like feathers even to the claws, and the tail extends nearly an inch and a half beyond the closed wings, whereas in the British bird it is scarcely longer than the wings themselves; moreover, in the little owl of Britain, the first wing-feather is equal in length to the sixth, the second like the fifth, the third longest. In the Swedish little owl, the first is like the ninth, the second like the sixth, the third and fourth the longest.

Passing on to the *Insectores* we come to a consideration of the genera *Sylvia* and *Salicaria*, and perhaps no birds are more generally overlooked, or, when noticed, so frequently confounded as some species in these two genera, as, for instance, *Sylvia cinerea* and *curruca*; *Salicaria arundinacea*, *phragmitis*, *aquatica*, *palustris*. Only within the past year has one of these (*S. aquatica*) been made known as a British bird, although it had been obtained in this country more than

ten years previously. The retiring habits of this class of birds, their sombre plumage, and their general resemblance in size as well as in colour, will easily account for the confusion which exists respecting them.

Reed and Sedge Warblers.—The reed warbler may be distinguished from the sedge warbler by its being a longer and slimmer bird, by the uniform colour of the head. In the sedge warbler the most conspicuous characters are a white line over the eye, a darker back, and dark centre to wing-feathers with lighter margins. In the reed warbler the feathers are more uniform in colour. The two species differ also in their note and flight. The note of the reed warbler, as distinguished from that of the sedge warbler, may perhaps be best described as more of a song and less of a chatter, clearer, less harsh, and more sustained. The sedge warbler is a great imitator; the reed warbler is more original. The nests and eggs of the two species differ considerably. The nest of the sedge warbler is placed on the ground, formed of dry grass and lined with hair. The eggs are yellowish brown. The nest of the reed warbler is supported on reed-stems formed of the seed-branches of the reed and long grass, coiled horizontally round with a little wool, including the upright reeds in the substance. The eggs are greenish white with dark green and brown freckles.

The specific characters of *S. aquatica* have lately been pointed out in a note recording the occurrence of this species for the second time (so far as is known) in England (*S. S.* 946).

Wood Warbler, Willow Warbler and Chiffchaff.—The wood warbler, willow warbler and chiffchaff all closely resemble each other, and by one not used to notice the distinctive characters of birds may be easily confounded. The chiffchaff, however, may be known by its smaller size and darker colour, and by the colour of its legs, which are dark brown. The legs of the willow warbler are pale flesh-colour, while the wood warbler is a brighter green above, and a purer white beneath, the yellow line over the eye more distinct, the tail shorter and the wings longer in proportion. In addition the song of each differs sufficiently to afford when at a distance a good means of distinction. In Bennett's edition of White's 'Selborne' may be found a note, in which the editor points out that the relative length of the second and third quill-feathers may be considered a constant distinguishing character in these three species.

Goldcrest and Firecrest.—Many people suppose that the only difference between the goldcrest and the firecrest consists in the crest of the latter being of a more flaming yellow than that of the former. If this were so the difficulty in distinguishing the two species would be great. A much clearer difference than this, however, exists: the firecrest invariably has a white line both above and below the eye, and a black line running through the eye; hence Temminck called it "Roitelet à triple bandeau." These three lines are absent in the goldcrest.

Cole Tit and Marsh Tit.—The marsh tit may be known from the cole tit by the absence of the white spot on the nape of the neck, which is always present in the latter bird.

Pied and White Wagtails.—We believe it is still a disputed point amongst naturalists whether the pied and white wagtails are really distinct species, or whether one is only a different form or variety of the other, owing its variation to the influence of a different climate, soil and food. But the same may be said of many other allied species; and it becomes necessary to decide what constitutes a species, an inquiry which is by no means easily answered. That certain differences which appear to be constant, do exist, however, between the pied and white wagtails may readily be seen on a comparison of the two birds so called, especially if adult specimens in summer plumage be selected. We will do no more than point out the differences between them, leaving it to other naturalists to receive or reject them as distinct species. In the white wagtail the head is covered with a distinct hood of pure black, perfectly defined and not mixing either with the gray of the back or the white of the forehead; the white on the cheeks and sides of the neck completely separates the black of the head from that of the throat and breast, there being no black before the shoulders; the sides also are much lighter and the tail somewhat longer. In the female there is no mixture of black on the back and nape, which there is in all the females of the pied wagtail which I have examined.

Yellow and Grayheaded Wagtails.—That pretty summer visitant the yellow wagtail and its congener the grayheaded wagtail, less common in England than on the Continent, are almost as frequently confounded as the pied and white wagtails, and in their immature state it certainly is not easy to distinguish them. When fully adult the chief points of difference between these two species may perhaps be best shown as follows:—

YELLOW WAGTAIL.

Head pale olive.
 Over eye yellow line.
 Chin and throat yellow.
 Two outer tail-feathers on each side
 white, with a streak of black on the
 inner side.
 All the others brownish black.

GRAYHEADED WAGTAIL.

Head gray.
 Over eye white line.
 Chin and throat white.
 Two outer tail-feathers on each side
 white, with a black border on the
 inner side of each; that of the second
 feather being broader than that of the
 first.
 The third feather black, with a narrow
 outer edge of white. The six central
 tail-feathers nearly uniform black.

Meadow and Tree Pipits.—The pipits, which hold an intermediate place between the wagtails and larks, have the slender bill of the former and (with one exception) the long hind claw of the latter. The meadow pipit and tree pipit might be confounded by a casual observer, but the latter may always be distinguished from the former by its larger size and short hind claw. The habits of these two species are very different, one of them, as its name implies, being much more arboreal, the other seldom perching upon trees, but living almost entirely upon the ground. Again, the note always affords a sure means of distinction; but in this, as indeed in other similar cases, each one must learn for himself. It is next to impossible to describe the notes of birds accurately, and more particularly those of the small birds.

Sky Lark and Wood Lark.—We have heard many persons express a difficulty in distinguishing the wood lark from the sky lark, owing to their similarity in colour; but the wood lark is a smaller bird, and has a very short tail compared with the other. It differs also in several other respects, as will be seen by the following table:—

SKY LARK.

Entire length 7 inches 3 lines.
 Bill stout.
 No line over eye.
 Ear-coverts light brown, with dark brown
 tips.
 Crest-feathers short.
 Spots on breast on a brownish white
 ground look confused and indistinct.
 Abdomen dirty white.

WOOD LARK.

Entire length 6 inches 3 lines.
 Bill same length, but more slender.
 Yellowish white line over the eye, ex-
 tending to the occiput.
 Ear-coverts dark brown, with black tips.
 Crest-feathers long.
 Spots on breast on a lighter ground and
 more distinct, resembling the pipits.
 Abdomen purer white.

Tail 2 inches 9 lines; feathers long and lanceolate, giving the tail a forked appearance when half closed; outer web of outside tail-feather white.

Tarsus stout, 1 inch, dark brown; toes 1 inch, dark brown; claws black; hind claw long, but variable.

Tail 2 inches 2 lines; feathers short and ovate, giving tail square appearance when half closed; outer web of outside tail-feather brownish black, with very narrow white margin.

Tarsus slender, 10 lines, light brown; toes 10 lines, light brown; hind claw somewhat shorter.

The Lapland bunting may be considered as the connecting link between the larks and buntings. In its plumage generally and in the length of the hind claw it resembles the larks. Its habits are also similar to theirs, living on the ground and seldom perching; it walks like the larks, and does not hop like the true buntings. As a rule, the buntings are all so very unlike each other that it would be impossible to confound them.

Cirl and Yellow Bunting.—The cirl bunting and the yellow bunting are perhaps the two which most resemble each other, but the male of the former may always be known from the latter by its black throat.

The Greater Spotted and Middle Spotted Woodpeckers.—Some doubt has, not unreasonably, been expressed as to the claim which *Picus medius* has to rank as a British bird, and with a view to this question, and for the benefit of those who may have opportunities of studying our woodpeckers, and who are not acquainted with *Picus medius*, it will be well to point out the respects in which this species differs from *Picus major*. Apart from its smaller size and more slender bill and legs, *P. medius* has no black on the crown of the head, but the red (which in *P. major* is confined to the occiput) in this bird extends over the entire crown to the forehead, which is grayish white. In *P. major* there is a black moustache running from the base of the bill on either side below the cheeks and terminating in an irregular patch of black; but in *P. medius* the black patch only on each side of the neck is seen, the moustache being absent. In *P. major* the second feather in the wing is half an inch *shorter* than the third, and has no white spots upon its outer web; in *P. medius* the second feather is a quarter of an inch *longer* than the third, and its outer web has white spots at regular intervals to the tip, which is also white. The red colour on the under tail-coverts, although not so bright in *P. medius* as in *P. major*, extends much higher towards the breast in the former, and the sides of the breast and flanks, which in *P. major* are of a uniform stone-white colour, are in *P. medius* striated,—that is to say, that

each feather upon the same parts, although of the same tint as regards ground colour, has in addition a narrow streak of dusky black down the centre of each feather. This is a marked character in the species, and will, in all stages of plumage, distinguish it.

Pigeons.—The different species of our wild pigeons can scarcely be confounded. The wood pigeon or ring dove is conspicuous by his superior size and white collar. The rock dove shows a white rump. The stock dove has neither of these distinguishing marks, but is almost of a uniform plum-colour. The smaller turtle dove, which is a regular summer visitant, and the rare passenger pigeon from North America, are so totally different from every other species that they cannot possibly be mistaken.

Golden and Gray Plovers.—The golden and gray plovers in their winter plumage are by many not distinguished, but the golden plover is the smaller bird, has shorter and more slender bill and legs, and has no hind toe like the gray plover; while the long feathers under the wings in the golden plover are *white*, and in the gray plover *black*. The gray plover before arriving at maturity has yellow spots like the golden plover, which at first sight would seem to increase the difficulty in distinguishing them.

Ringed and Little Ringed Plovers.—It would appear that, notwithstanding its smaller size and more slender form, the little ringed plover is not distinguished by the majority of persons from the common ringed plover. Even old sportsmen who have shot scores of ringed plovers have sent us the young of *Charadrius hiaticula* for *C. minor*. Apart from size and shape, the following characters will always serve to distinguish the latter from the former bird in any stage of plumage. The shaft of the first quill-feather only is white, and the white spots, which are always present on the webs of the wing-feathers in the common species, and which give the appearance of a white bar across the wing in flight, are in the little ringed plover absent, and in lieu thereof the tips only of the wing-feathers are margined with dull white. In the last-named species also there is a dusky spot on the inner web of the outer tail-feather on each side, which feather in the common ringed plover is generally pure white.* The colour of the bill and legs is very similar in both species.

* From an examination of numerous specimens, it appears that this character in *C. hiaticula* is not constant, some individuals having the outer tail pure white, while others exhibit the dusky spot on the inner web of that feather, as is the case with *C. minor*.

Green and Wood Sandpipers.—The wood sandpiper may be distinguished from the green sandpiper, which it closely resembles, by the following characters:—It is rather smaller in size, has proportionately a shorter bill and longer tarsus; the legs are lighter in colour, and it has not the white markings under the wings which are conspicuous in the green sandpiper. A marked difference also exists in the tail-feathers. In the green sandpiper the tail is, for the greater part, white, the outside feather on each side with one small dark spot on the outer web near the end; the next feather with two dark spots; the third and fourth with two rather broad dark bands; the fifth and sixth with three or four dark bands; but all the marks are on the distal half of the tail-feathers, leaving the basal half pure white. In the wood sandpiper the tail-feathers are barred with narrow transverse white bars on a ground colour of greenish black. The axillary plume in the green sandpiper is grayish black, with narrow angular white bars; in the wood sandpiper it is white, faintly marked with transverse dusky bars. There is another point also in which these birds differ, and which appears to have been hitherto overlooked. In the wood sandpiper the shaft of the first quill-feather is white, the remaining shafts dusky; whereas in the green sandpiper the shafts of all the quill-feathers are dusky.

Little Stint and Temminck's Stint.—Neither Temminck's stint nor the little stint can be considered as anywhere common in Great Britain, neither of them remaining here to breed, and being only found accidentally at the usual periods of migration in spring and autumn. It is probably on this account that so little is known of their habits, and many persons cannot even distinguish them. Temminck's stint may be regarded as a miniature common sandpiper, exhibiting a more uniform colour throughout, and having light-coloured legs; while the little stint, like a miniature dunlin, displays a more mottled and varied plumage and has black legs. Nor need the parallel be confined to the plumage only, for as far as our experience goes, Temminck's stint, like the common sandpiper, affects the soft mud around inland pools and marshes, while the little stint, like the dunlin, prefers the sand and shingle of the sea-shore. The chief distinguishing characters of the two species may be briefly set forth as follows:—

TEMMINCK'S STINT.

Colour more uniform.

Tarsus light brown, short and slender.

LITTLE STINT.

Colour more varied.

Tarsus black, longer and stouter.

Wings: first quill-feather with white shaft; all the other feathers with dusky shafts.

Tertial feathers reach to very near the end of primaries.

Tail: three outer feathers on each side almost white; the first outside white, with a faint dusky spot on the outer web; the second white, with a narrow dusky streak on outer web; the third white, with broad dusky streak on outer web.

Wings: all the quill-feathers with white shafts.

Tertial feathers do not reach within a quarter of an inch of end of primaries.

Tail: three outer feathers on each side all pale gray: no white.

Although Temminck's stint assumes a more varied plumage in summer and the little stint a more uniform colour in winter, the difference in the wing and tail-feathers, as pointed out above, will be at all times a sufficient guide in determining the species.

Little Crake and Baillon's Crake.—Pass we now to the crakes. The little crake in general colouring approaches the water rail, while Baillon's crake more nearly resembles the spotted crake. Bearing this in mind we may determine the species of either of these little rarities without the necessity of a reference or comparison. Yarrell says that the little crake exhibits but a few white marks on the centre of the back, and sometimes on the scapulars, but never on the wing-coverts; in Baillon's crake, on the contrary, these white marks are very numerous, occupying several distinct situations, namely, the central space on the back, the scapulars, wing-coverts and tertial feathers on both sides. The colour of the bill is the same in both species, being pale green and red at the base; so also is that of the eye, crimson-red. The colour of the legs, however, differs in each, those of the little crake being light green, and those of Baillon's crake being flesh-colour.

Gray Geese.—The following table will suggest the readiest means of distinguishing the four species of British gray geese:—

SPECIES.	BILL.	LEGS.
Graylag Goose . . .	Flesh-colour; nail white.	Flesh-colour.
Bean Goose . . .	Orange; nail, edges and base black.	Orange.
Pinkfooted Goose . . .	Pink; nail and base black.	Pink, tinged with vermillion, like Egyptian Goose.
Whitefronted Goose . . .	Pink; nail and base white; forehead white.	Orange.

Swans.—A wild swan may always be known from a tame one by its having the colours of the bill reversed; that is to say, a wild swan

always has the base of the bill yellow and the extremity black. In the domestic bird it is just the reverse.

Common and Arctic Terns.—The habits of both *Sterna Hirundo* and *S. arctica* are very similar, and their general resemblance such that, except by the note (which is difficult to imitate), it is impossible to distinguish them on the wing at any distance. When endeavouring to point the distinctive characters of these two species, many authors give measurements of the wing, tail and total length; but, from an examination of a great number of specimens of each, it appears that individuals of the same species vary so much, according to sex and age, that these measurements are practically of but little use. We are also told that the arctic tern is always much darker beneath than its congener: generally speaking this is so, but we have seen some common terns, shot in June, when in full summer plumage, which were quite as dark as many arctic terns which we have examined. Again, many naturalists say that while the bill of the common tern is red, with a black tip, that of the arctic tern is invariably red throughout its whole length; but this is only the case with fully adult birds. The young of both species at first have the bill of a dark horn-colour, orange-red at the base. As the bird gets older the darker colour recedes further from the base, while the red becomes brighter, and finally only the tip of the bill remains black in the common tern, while in the arctic species the black colour disappears entirely. The only features which really appear to be constant, and may consequently be considered indicative of the species, are the comparative length of bill and tarsus, and the length of the closed wings in proportion to the tail. In a few words, the differences may be shortly stated as follows:—

COMMON TERN.

Bill longer and stouter, average = 2 inches; red, black at tip.

Tarsus longer, average $8\frac{1}{2}$ lines.

Tail equal to, or (generally) shorter than closed wings.

Under parts whiter.

Black cap, extends perhaps a little further and is more pointed in form.

ARCTIC TERN.

Bill shorter and more slender, average = 1 inch 6 lines; in old bird red throughout.

Tarsus shorter, average $6\frac{1}{2}$ lines.

Tail longer than closed wings.

Under parts grayer.

Black cap rather shorter and more rounded in form.

This last statement requires confirmation.

J. EDMUND HARTING.

Kingsbury, Middlesex, September, 1867.

Notes on the Folk-lore of Zoology. By EDWARD R. ALSTON, Esq.

(Continued from Zool. S. S. 924.)

Squirrel.—In the Northern myths the squirrel bears the character of a tale-bearer; for ever and ever he runs up and down the sacred ash-tree Ygdrasil which supports the world, spreading discord between the eagle seated on the boughs and the great snake Midgardsormen which lies in the abyss beneath. On account of its colour it was held sacred to Thor, and Simrock tells us that according to an ancient custom the squirrel is hunted by the German peasants at Easter, in England at Christmas, which he attributed to "Christian hatred to the darlings of the heathen gods" (*Handb. der Deut. Myth.*, p. 554).

Black Rat.—Concerning this species Verstigan, in his curious 'Restitvtion of Decayed Intelligence' (London, 1634), relates the following "most true and marvelous strange accident," as he terms it:—"There came into the towne of Hamel, in the country of Brunswicke, an old kind of companion, who, for the fantastick coate which he wore being wrought with sundry colours, was called the pide (*pied*) piper, for a piper he was, besides his other qualities. This fellow, forsooth, offered the townsmen for a certaine somme of money to rid the towne of all the rats that were in it (for at that time the burgers were with that vermine greatly annoyed). The accord in fine being made; the pide piper with a shrill pipe went piping thorow the streets, and forthwith the rats came all running out of the houses in great numbers after him; all which hee led into the river of Weaser and therein drowned them." But in the sequel it appears that the burghers refused to implement their bargain, whereupon the "pide piper" spirited away a hundred and thirty of their children, leading them into a hole in a hill-side, and neither he nor they were ever seen again. Honest old Verstigan relates this tale of "negromancy" with all faith, and tells us in conclusion that "this great wonder hapned on the 22nd day of Iuly in the yeere of our Lord 1376."

Alpine Marmot.—Many extraordinary stories have been told regarding this curious rodent, which some of the mediæval naturalists held to be a cross between the badger and the squirrel. The Swiss peasants believe that the marmot's fat eases the pains of childbirth and cures colic and chest complaints, while its fresh and warm skin is a specific for rheumatism. Strange tales, too, are told of the marmot's autumnal harvest, how one lies on its back and holds up its legs, thus converting

itself into a hay-waggon, which is loaded by the rest and then dragged by the tail to their dwelling! It is true, says F. von Tschudi, that marmots often have the hair rubbed from their backs, which, although only caused by the narrowness of their burrows, may have given rise to this story. During their winter sleep they are said by some of the peasants to waken at every new moon, and others merely to turn over and lie on the opposite side (*Tschudi, 'Thierleben der Alpenwelt,'* p. 532).

Lemming.—The periodical invasion of Scandinavia by vast swarms of these destructive little beasts, coming no one knows whence and wandering no one knows whither, has given rise to the common belief of the Norse peasants that the lemmings fall from the clouds in rain, and strange tales are told of their even descending on the decks of vessels at sea. In old days, according to Bishop Pontoppidan, an annual feast was held at Bergen, called the "Mouse-festival," when grave rites were performed to avert this plague. The peasants believe that cattle will refuse to eat grass that has been touched by a lemming, and that the latter are pursued and devoured by the reindeer.

Mole-rat.—There is said to be a strange superstition in Russia regarding the sleper or mole-rat, namely, that if a man has the fortitude to catch one in his naked hand and squeeze it to death in spite of its teeth, he will be rewarded for his courage by being endowed with the power of curing goître by his touch (*Wood, 'Popular Natural History.'*)

Hare.—A misunderstood peculiarity in the anatomy of the hare seems to have been the origin of the old belief that this animal annually changes its sex. Isaac Walton, in the "Compleat Angler," makes Piscator say:—"There are many country people that believe that hares change sexes every year, and there be very many learned men think so too, for in their dissecting them they find many reasons to incline them to that belief." It was an evil omen to meet a hare when starting on a journey. "It is unlucky to travel," says the worthy Thane of Coningsburgh in 'Ivanhoe,' "when your path is crossed by a monk, a hare, or a howling dog, until you have eaten your next meal." The hare was a common form for witches to assume. Isabel Gowdie, who was convicted of witchcraft in Nairnshire in 1662, confessed to this practice (*Chambers's 'Domestic Annals of Scotland,'* vol. ii., p. 287), and informs us that the necessary charm was to repeat the words—

"I sall go intill a hare,
 With sorrow sich and mickle care;
 And I sall go in the devil's name,
 Aye, when I come home again."

When in this form, she said, "the dogs will sometimes get bits of us, but will not get us killed: when we turn to our own shape we will have the bits and rives (tears) and scarts (scratches) on our bodies." When the witch wished to return to her human form she repeated the words—

"Hare, hare, God send thee care!
 I am in a hare's likeness now,
 But I sall be a woman even now;
 Hare, hare, God send thee care!"

Elk.—The elk or moose is or was believed, both by the Scandinavians and the North-American Indians, to be subject to frequent fits of epilepsy, or cramp, as others say; and its hoofs were considered (on the homœopathic system) to be an infallible specific for these diseases. The Indians say that when the moose feels these fits coming on it bleeds itself by cutting one of its ears with the sharp edges of its fore hoofs.

Red Deer.—The wounds caused by the antler of the stag at bay were considered very dangerous, as witness the old rhyme:—

"If thou be hurt by horn of stag
 It brings thee to thy bier,
 But leech's skill shall boar's hurt heal,
 Therefor thou needst not fear."

It was also believed that a wounded deer sought medicinal plants to cure his wounds: to this Marlowe alludes in his play of 'Edward II.':

"The forest deer being struck
 Runs to an herb that closes up the wounds,
 But when th' imperial lion's flesh is gored
 He rends and tears it with his wrathful paw."

In the mythology of the Teutonic races the stag, like the wild boar, was an emblem of the sun: he also appears in a variety of legends as sent from another world to decoy away those who follow him. Thus in Scottish story Thomas the Rhymer sees

"A hart and hind pace side by side,
 As white as snow on Fairnalie;"

he follows them to Fairyland, and is seen no more by mortal eye: other similar legends are quoted by Simrock in the work I have so often alluded to.

Wild Boar.—In the Scandinavian myths the wild boar is the emblem or personification of the sun, an honour which, as already noticed, it shares with the stag. Hence the boar is also an emblem of fertility, and even yet the Germans say, when the ripening corn waves in the breeze, "the boar passes through it." Boar's flesh was a favourite dainty with most of the northern nations, and was assigned to the gods and heroes as their food in Walhalla. The memory of the "swine" as a Scottish "beast of venery" lives in the lines—

" Bilhope-braes for bucks and raes,
Carit-rigs for swine,
And tarras for a gude bull-trout,
If it be ta'en in time."

This is quoted by Sir Walter Scott, as "an old rhyme which celebrates the places in Liddesdale remarkable for game; the bucks and roes as well as the swine are now extinct, but the good bull-trout is still famous." The very common belief that pigs in swimming cut their own throats with their sharp fore-hoofs is rather mysterious in its origin; in real life the pig is no bad swimmer.

EDWARD R. ALSTON.

Stockbriggs, Lesmahagow, N. B.,

October, 1867.

(To be continued.)

Errata.—At Zool. S. S. 883, line 2nd, for "squaring" read "squeezing"; same page, second line from the bottom, for "scalets" read "scalds." S. S. 924, lines 6th and 10th, for "one" read "ane."—E. R. A.

Ascension: Wide-awake Fair and the Turtle Ponds.

By Dr. C. COLLINGWOOD, F.L.S.

IN this communication I shall only refer to the barren, lava-strewn part of this island, which has its special points of interest quite apart from the verdure-clad heights of Green Mountain, an account of which latter, from the pen of Mr. T. Baines, appeared in the 'Leisure Hour' for September.

The aspect of the island from the sea is not a little remarkable, owing to its peculiar red colour and desolate aspect. Sloping rocks of

the roughest lava, broken here and there by sandy bays, stretch along the shore, and the island consists of an irregular series of conical hills of various heights, among which towers Green Mountain, 2800 feet high, whose summit is crowned with trees and green fields, and offers a strong contrast to the other hills, which are reddish or brown, according to the colour of the ashes and cinders of which they are composed. The settlement of George Town is entirely naval in its character, being formed of a number of departmental officers and of marines, who are all borne on the books of H.M.S. "Flora," 40 guns, which lies off this place, and whose captain is styled the "Captain of the Island." Everything is conducted with the strictest reference to naval discipline, and the island is nothing more nor less than a ship ashore. The landing-place is very indifferent, mere steps cut in the rock, and therefore entirely inaccessible in bad weather. It is well known that the great waves of the Atlantic often set in upon the rock in the form of *rollers*, even in fine weather, and it can never be predicted when they may make their appearance; but whenever they do so all communication between the ships and the shore is cut off, except by signal. It is one of the duties of the master of the "Flora" to direct a flag to be hoisted on the signal-hill when this state of things occurs, and that is pretty frequently.

As our stay was to be limited to one day I was thankful that the weather was calm and the sea permitted us to land, and having done so I bent my steps in the direction of South-West Bay, with the intention of visiting "Wide-awake Fair," and at the same time exploring some of the geological features of this remarkable island. The whole of Ascension is an erupted mass, the antiquity of which can only be judged of by the worn condition of its surface, but it is entirely the product of a once-active but long-since extinct volcano. Green Mountain, the culminating point, is probably the parent cone, around which a great number of secondary cones and craters are clustered, the rough trochytic lavas of which run sloping to the beach round the greater part of the island.

One or two tolerable roads have been formed, which greatly save the labour of walking in a country where the surface of the ground is heaped with rough and sharp-pointed cinders, which look like the product of a myriad furnaces, and to which the "black country" of Staffordshire is a trifle. From these arise conical hills of a reddish colour, covered with fine ashes, which crackle under the feet, and from out of which peep the rounded overhanging ledges formed by

molten lava. Down these hills streams of water have poured during the brief and uncertain wet season, forming water-courses which run between the rounded knolls, which look like *roches moutonnées* at the base, and intersect the lava-fields down to the beach. Other hills are hollow and crateriform, the sides formed of loose masses of slag or clinker of various sizes. Up one of these I clambered, and found the interior deep and cup-shaped, but incomplete or one-sided, the bottom being a small level deposit of mud and sand, produced by the washings of the cinders in wet weather: among these cinders I found several fragments of exploded volcanic bombs, such as are described and figured by Mr. Darwin in his notice of the island.

From this elevation the view was most striking: a deep and broad rocky valley in the fore ground, covered with screaming sea-fowl, beyond which arose an irregular series of naked and desolate conical hills piled one above another in chaotic confusion, but surmounted by the verdant and fertile heights of Green Mountain, upon which may be descried trees, meadows and pastures, like the delectable mountains seen afar off by the pilgrims.

It must not be supposed, however, that the surface of the island is absolutely without vegetation. The cinders in many places are incrustated with white and gray lichens (*Parmelia* and *Roscella*), and I also observed a deep green incrusting lichen on the sea-shore. Many spots also, in the water-courses, are quite cheerful with patches of bright green, and several flowers spring up here and there which have escaped from the gardens on Green Mountain. I was informed that some person had been in the habit of scattering seeds over various parts of the island. I noticed two species of grasses, a *Sonchus*, an *Aster* with scented leaves, &c. The most common plants, however, were the castor-oil (*Ricinus*), a very handsome yellow poppy with prickly white-veined leaves, and a large-flowered plant which is known on the island as the Madagascar rose, and is reported to have been imported from thence.

Among this vegetation a few insects occur: large red-winged locusts fly about among the rocks, and a fat black cricket is common—I also saw a pale brown one, but could not catch it. A little moth (a species of *Pyramidella*), very prettily marked, is common wherever the succulent plant above mentioned occurred, and flew about among the rocks, settling for a moment and then taking wing again, unless it happened to get in the shelter of a crevice in the honeycomb of a cinder, where it seemed to consider itself safe. A somewhat larger pale brown moth

I also noticed from time to time, but it flew rapidly and was aided by a strong breeze which was blowing, and appears usually to be blowing, over the island. Besides these insects I saw carrion flies upon the rocks, a hunting spider and numerous small carrion beetles in situations to be presently mentioned.

The lava and cinders in the neighbourhood of South-West Bay are whitened here and there by the dung of sea-birds, but the extraordinary scene of the breeding-place of the terns, or wide-awakes, and called "Wide-awake Fair," is a long valley situated about half a mile from the sea in the south-eastern part of the island. The approach to this valley is indicated by an overpowering odour arising from their deposits, which, however, do not accumulate as in some guano islands. Seen from the hill above, this valley looks as though a light fall of snow had partially whitened it, but in no place was there any appreciable depth of deposit. The birds themselves are in immense numbers, hovering over the valley, screaming and making various discordant noises, which, heard at a distance, sound like the murmur of a vast crowd. They are elegant and graceful birds, glossy black above and snowy white beneath, with white foreheads, straight compressed beaks and long forked tails: they measured two feet six inches from tip to tip of the wings, which are long and pointed. As soon as a visitor makes his appearance among the nests, numberless birds arise screaming in the air, and form a complete canopy over his head; some, bolder than the rest, fly so close that it is the easiest thing in the world to knock them down with a stick, and it is even necessary to strike at them occasionally and give them a slight tap to admonish them not to use their bills against one's face. Meantime crowds of little ones, of all ages and sizes, some covered with a gray down and others almost fully fledged, run hither and thither, tumbling over the stones in their hurry to escape from the intruder. Here a chick has but just broken the egg, and the parent bird is nestling over it, and does not leave it until you arrive so close that you could stretch out your arm and take it up. Eggs lay scattered all over the place, deposited in little hollows in the sand, about as large as the palm of the hand, which is all the nest which the "wide-awake" considers necessary; and in many of the rocky crevices in which these eggs were deposited the skeleton or half-decayed body of an adult bird, but more frequently a young one, upon which a number of carrion beetles were busy, showed where it had died and rotted beside the nest.

At the particular season at which I visited this singular spot, the birds were in every stage of growth, from the newly-hatched chick to the bird with first year's plumage, flying with the rest. Eggs also were abundant, never more than one in the same nest; and although the parent bird was in some cases sitting upon fresh or half-hatched ones, in a great many instances the eggs were cracked, and either rotten or dried up. Many that I picked up felt light and empty, although scarcely injured, and others which I broke contained carrion beetles or their grubs. The eggs were very variously marked, and had not a little variety of form: the common appearance of them was round at one end and pointed at the other, about the size of a plover's egg, and in colour a whitish ground, blotched with faint purplish and distinct rich brown blotches, which often formed a ring round the larger end; but some which I noticed were long and pointed at both ends, and without blotches, but speckled with small purplish and brown spots. There was no other kind of bird, however, visible in the whole valley.

It would be easy for any person in the valley to fill a sack with adult birds, although he possessed no other weapon than a stick, and too many of the visitors are not content without maiming a number in mere wantonness; so that the poor birds can hardly be said to dwell unmolested; nevertheless, as long at least as they have nests and eggs to look after, they evince what I should characterize as boldness rather than tameness. I should consider the Solan geese on the Bass Rock as tamer than the "wide-awakes" of Ascension.

Before leaving the island I visited the turtle-ponds, where these animals are kept in store; for Ascension, barren and desolate as it is, has yet one product in which it is not exceeded by any part of the world, *viz.* turtle. The sandy bays of the island are visited by great numbers of these unwieldly and valuable reptiles, which, entirely marine and oceanic in their habits, visit the shore solely for the deposition of their eggs, and are secured on these occasions by being cut off from their retreat to the sea and turned over on their backs, are then conveyed at leisure to the reservoirs provided for their reception. The sandy shore adjoining George Town, I was informed, is no longer so rich and profitable a beach as it once was, the reason probably being that turtle, like birds of passage, return again and again to the same spot to deposit their eggs, and on this beach as being most accessible, the greatest number of turtle have been turned, so that but few visit it at present. No one but the government authorities is

allowed to interfere with this source of emolument, and the turtle form a staple article of food upon the island, being served out twice a week, but the animals are sent to persons in authority in England, and are supplied to merchant ships at the rate of £2 10s. each. The season was just over when I visited Ascension, and the turtle-ponds contained eighty-two animals. These ponds, two in number, were on the sea-beach, each fifty or sixty feet square, and three or four feet deep, and the sea is allowed to wash into them by two grated channels. All the turtle, however, were in one of these enclosures, and could be seen swimming about, ever and anon raising their stupid-looking heads above the surface and snorting out a jet of water. They seemed to crowd together in one corner, where each wave as it broke sent a rush of fresh sea-water into the pond. Numerous small fishes and crabs swam about them unmolested; but on inquiry I learned that they are never fed, although they are not unfrequently kept in the reservoirs for a year or more after capture. They were very variously marked, some with large black spots, others with indistinct radiating streaks upon the plate, and several had a large white patch in the middle of the carapace. One in particular was conspicuous from his very peculiar form. Instead of being gently rounded as usual, the carapace was high and terminated in a ridge, which, as he swam about, was elevated fully six inches above the water—a conformation which it appears occasionally, although rarely, occurs. While I was watching them, preparations were made for getting one out of the pond. A negro walked into the midst of them, and having selected one, he tied a cord round one of the anterior fins, by which it was pulled by several other negroes out of the pond by main force, and laid upon its back on a small four-wheeled carriage prepared for it, in which helpless position it was dragged away without a struggle.

On the lava rock adjacent, where the waves break with great violence, great numbers of beautifully coloured crabs (*Grapsi*) ran actively about; the pools abounded with large purple-spined Echini, esconced in round hollows, and beautiful azure, and banded rock fish, but the only seaweed I observed was the cosmopolitan peacock's-tail (*Padina pavonia*). My exploration, however, was necessarily brief, as it was necessary forthwith to rejoin the ship.

C. COLLINGWOOD.

14, Gloucester Place, Greenwich,
October 9, 1867.

Ornithological Notes from the Isle of Wight.

By Captain HADFIELD.

(Continued from Zool. S. S. 910.)

AUGUST, 1867.

Martin.—The scarcity of martins this season has been remarked on, and had my observations been confined to this neighbourhood I should have been inclined to say the same, as they are decidedly less numerous than usual, but at Shanklin they are most abundant, and in July were swarming about the sea-cliffs: there were young on the wing by the end of the month, and so numerous that they were knocked down with stones.

Spotted Flycatcher.—Numbers seen of late in Appuldurcombe Park, where there are still some good-sized trees. This species is far more abundant in the wooded uplands north of the downs than in the Undercliff, where the foliage is comparatively dense. Shrike-like they frequent the bare or solitary trees, though not so often seen on the topmost branches.

Swallow.—Though few breed in the Undercliff, many pairs nest in the neighbouring inland villages.

Partridge.—Towards the end of August I saw an unusually large covey of partridges at Niton: having taken the shooting on a neighbouring farm, I am told that it contains twenty-nine birds. That a partridge could cover that number of eggs seems impossible; but I am assured that the birds have kept together for weeks, so if originally two coveys they must have united early in the summer, which I never knew them do, though they will gather together in the autumn.

SEPTEMBER.

Whimbrel.—This species has reappeared, one having been shot on our rocky shore on the 12th. Being here rather uncommon, it was taken for the curlew.

Wheatear.—Numbers observed of late about the newly-ploughed lands, but they are mostly birds of the season or females.

Night Hawk.—Has been met with occasionally on the Downs, and is doubtless about to migrate.

Turtle Dove.—More numerous than I ever remember to have seen them, though mostly frequenting the uplands, and, unlike the wood-pigeon, far from villages and dwellings.

Landrail.—Frequently met with, and I believe them to be very abundant this season.

Wagtail.—Both pied and white wagtails frequently observed flocking together, particularly towards nightfall.

Partridge.—Some of the late broods are remarkably small; a partridge shot on the 16th of September weighed but eight ounces, and another was seen still more diminutive. Owing to the cold and late spring, the thermometer little above the freezing point during the first three weeks of March, the pairing and breeding must have been greatly retarded and impeded, though the Rev. F. O. Morris, in his letter to the 'Times' of the 23rd of September, says, "I think the severe weather we had in the winter and in May had nothing whatever to do with the present scarcity of partridges, for I never saw a partridge that appeared to suffer from the hard weather." But I think him mistaken; for instance, in a previous communication (S. S. 740), I have remarked, "Though a strong and hardy bird, the severe winter is beginning to tell on them; and they now feed chiefly, if not wholly, on the grass and turnip-leaves that are still above the snow. The gizzard of one contained but a small quantity of coarse grass." This partridge, and others shot while the snow was on the ground, was in poor condition, and I cannot but think the severe weather the cause. That a snow-storm tames the partridge, as well as most other birds, the poulterer's shops and stalls but too clearly prove: besides, who has not seen coveys huddled together on the snow, and not taking wing till one is close upon them, presenting a sure and ready mark to those who pursue them on these occasions; and doubtless some fall victims to birds of prey. Others, there is reason to believe, are so weakened as not to pair readily, or pairing fail in fecundity, as is the case with animals when out of condition; and the number of old birds met with this season, though by no means "the preponderating stock," leads me to think they may not have been in a condition to breed. The comparative tameness of the partridge in September, so that "he may be almost trod on in the early and hot part of the season," is owing not so much to the heat of the weather as to its weakness of wing, and being as yet little disturbed or molested. That "he should rise at sight of you a couple of hundred yards off," late in the season, is natural enough, for being then strong on the wing and wary he gets out of harm's way, unless frost and snow deprive him of the power of doing so. Unlike the partridge—*i.e.* ruffed grouse—of Canada, he has not the faculty of burrowing beneath the snow in

quest of food; his shorter, and less webbed or membranous toes unfitting him for working through or under the snow.

Swallow.—28th. Great numbers seen in the neighbourhood of Sandown; they are now flocking together.

Martin, &c.—30th. Numerous martins and some swallows, mostly birds of the season in immature plumage, were observed hawking about the trees near the cliffs. Though the days are warm (thermometer between 55 and 60° at 9 A.M.) there has of late been white frost at night, and I believe the migration has commenced.

Willow Wren.—Observed all through the month.

Wild Duck.—Has been already seen on our coast.

HENRY HADFIELD.

Ventnor, Isle of Wight, October 7, 1867.

Rats eating Grapes.—A circumstance novel to me, and perhaps to some readers of the 'Zoologist,' occurred here within the last few days. The gardener came to me on Friday last, and said that something had been at the grapes. I went up to the green-house with him, and it was very evident that something had been at them indeed, for the bunches in several places were almost half destroyed, some grapes being half eaten, others skinned but not eaten, and others nipped off and lying on the ground. We both suspected rats; but I thought perhaps a squirrel might have got in early in the morning (for they are numerous about here) and committed the act. The gardener stuffed a hole which he observed at the place where the vine enters the green-house with grass: next morning the same scene presented itself, if not worse; he then stopped the hole with furze-bushes, but to no purpose. We then set ten traps, one to each vine, and next morning we had four large brown rats in them, which circumstance clearly proved that they were the culprits. This year they also attacked our cherries, nipping them off by the stalk, but leaving them otherwise untouched, for they did not seem to eat any of them.—*R. M. Barrington; Fassaroe, Bray, County Wicklow, October 15, 1867.*

Varieties of Birds.—Beside the whitewinged partridge recorded in the 'Zoologist' (S. S. 950), the following varieties are known to have occurred at Cobham:—

1. Sparrowhawk. White, slightly mottled with brown.
2. A brood of white blackbirds, four or five in number, beside many pied varieties.
3. A pure white martin.
4. A white turtle dove.
5. A buff-coloured partridge.—*Clifton; Eton College, Bucks.*

Notes on Newman's 'Birdsnesting.'—

1. Golden Eagle (Zool. 7394). Still breeds in Scotland, and more numerous than is generally supposed. Mr. E. C. Buxton (Zool. 7463) mentions the fact of the

golden eagle having bred in the west of Ross-shire between the years 1844 and 1847. This year when in Sutherland, in August, I saw a young male bird which had been taken, in all probability, from the same eyrie which Mr. Buxton alludes to. There is only one locality on the shootings of Loch Ailsh.

2. Osprey (Zool. 7395). I believe that there is now only one locality in Scotland where the osprey breeds: it has long since deserted those localities mentioned by Mr. Newman, viz. Loch Lomond, Loch Awe, &c.

3. Goshawk (Zool. 7395). The goshawk, if it ever bred in Orkney, must have placed its nest on the cliffs, as there are no "tall fir trees," to my knowledge, in Orkney. Even furze will not grow healthily in Orkney.

4. Kite (Zool. 7395). Now, I fancy, quite extinct in Scotland as a breeding species. I have one egg in my collection, taken in Argyleshire, in 1862, which I received from Dr. Dewar.

5. Tawny Owl (Zool. 7397). Frequently breeds in hollow trees. I have known more than one nest thus placed, and have eggs taken on two different occasions from a like situation in Craig Lochart Woods near Edinburgh. I also know of a pair of tawny owls breeding in a slit or fissure of a rock near here.

6. Sedge Warbler (Zool. 7441). Mr. Newman says of this bird, "In fact, it seldom frequents reeds." My experience of this bird has always been quite the contrary. The nest is never suspended by the reeds, it is true, but the birds themselves I have constantly observed sitting on the long bending reeds as they waved in the wind.

7. Siskin (Zool. 7474). The siskin, as far as I have been able to observe, generally places its nest at a considerable height above the ground. I have seen the nest fully forty feet from the ground (Zool. S. S. 893), and I heard of four nests this year in Kincardineshire, all of which were similarly placed. The siskin breeds in Aberdeenshire, East Sutherland, and many other localities in Scotland. It is a most difficult matter to secure the eggs, even after the nest is discovered, as the latter is almost always placed at the very extremity of the branch of a black fir tree.

8. Twite (Zool. 7475). A favourite position for the twite's nest is amongst the white grass growing on rocks on the sea-shore, and in similar situations as those chosen by the rock pipit.

9. Heron (Zool. 7480). The heron breeds in small numbers on the cliffs west of Stromness, in Orkney. Also breeds in considerable numbers on low alder-trees on Loch Ailsh, in Ross-shire. Eggs pale green.

10. Dunlin (Zool. 7481). The dunlin breeds on the shores and islands of inland lochs in Sutherland, Stirlingshire and other localities.

11. Redthroated Diver (Zool. 7496). Breeds plentifully in Sutherland, as well as in Hoy, Orkney, as does the blackthroated diver.

12. Ringed Guillemot (Zool. 7496). Breeds at Handa, Hoy Head, and several other localities.

13. Black Guillemot (Zool. 7497). Is not, I believe, now present in the Firth of Forth during the breeding-season.

14. Shag (Zool. 7498). I have myself taken the shag's eggs at the Lizard, Cornwall.

15. Common Gull (Zool. 7500). Does the common gull breed on cliffs at St. Abbs Head? If so is it not uncommon? Any I have ever found have been upon

level ground on islands or shores of inland and sea lochs, and often placed deep amongst long white grass.—*John A. Harvie Brown; Dunipace House, Falkirk, September 28, 1867.*

Errata.—In my "Collected Observations on the Birds of Stirlingshire," in the September number of the 'Zoologist,' page 884 and elsewhere, for "Campsil" read "Campsie." Page 893, line 26, for "Inarter" read "Quarter." Page 896, line 29, for "craw" read "cran." Page 904, line 29, for "the species" read "the next species." I am very sorry these errors have occurred, as they are entirely my own fault, in not having written some of my letters distinctly enough.—*J. A. Harvie Brown.*

Further Note on the Buzzards seen in Kent.—A few days back I sent you an account of my seeing a buzzard here on two occasions, and of two having been seen together. Having satisfied myself that the birds seen were buzzards, I immediately wrote to you without further consideration. On each occasion I observed the bird through a small pair of opera-glasses, at distances of about four hundred and one hundred yards respectively, and I saw that the upper part of the tail was white. I had never seen this in any other hawk, but I was not familiar with buzzards, and did not remember whether the common buzzard had that part white or not; but when I came to examine drawings of that species and the three stuffed specimens here, I found that this white was the distinguishing characteristic of the roughlegged buzzard. To use the words in Gould's 'British Birds,' "the roughlegged buzzard when in the air may be easily distinguished by the *white root of the tail.*" Being now confident of these being roughlegged buzzards I closely examined the under keeper, who has generally seen the birds, and he distinctly and unhesitatingly stated that the upper part of the tail was white, and that he had never seen anything like it before: they came close over his head. He thought they were larger than the common buzzard, and one was much larger than the other. Their flight resembled both that of the heron and of the common hawks. Sometimes they flew low with flapping wings, sometimes soared in circles. I fancy they make long excursions into the country, as sometimes they are not seen for days. If Captain Hadfield or any other naturalist acquainted with buzzards would kindly offer an opinion as to the likelihood of these being the roughlegged species I should be much obliged.—*Clifton; Cobham Hall, September 24, 1867.*

Early Arrival of Fieldfares.—Upon the 25th of September, while in a garden at Aldeburgh, Suffolk, I chanced to look up, and was considerably surprised to see a small flock of fieldfares flying over my head: there were about a dozen in the flock. It had been rather cold weather that week in Suffolk, but nevertheless it is early for this bird to visit us. Two other persons saw them besides myself.—*Alexander Clark-Kennedy; September 27, 1867.*

Late Greenfinch's Nest.—Mr. Clogg mentions a yellowhammer's nest found on the 26th of August. I found a greenfinch's nest, with young ones, in a blackthorn, about that date, certainly in the last week of August.—*Clifton.*

Hawfinches' Nests and Eggs.—Observing in the October number of the 'Zoologist' (S. S. 949) a notice of the hawfinch (*Loxia coccothraustes*) at Selborne, Hants, I may mention that in Huntingdonshire this species appears to be on the increase; at least it is so in our locality, where we never used to have any, and I have kept a look out on birds for many years. Now we have a regular colony, and I have taken three nests at the same time, all within twenty-five yards of each other. It is of no use to describe

such well-known things; I will, therefore, only mention that they are always upon apple-trees, avoiding pear-trees, which are in proximity. I wish to say a word, however, concerning the eggs, of which my collection contains a series of complete sittings. Among these there are three distinct varieties, two of which are not unusual, but the third I believe to be much so. Two sets of this latter sort, the first taken on the 28th of April, 1865, consist of five; the second on the 11th of May, 1867, six in number, have in both cases a pale bullfinch-blue ground, with small spots, instead of the usual streaks, and resemble the eggs of the waxwing (*Bombycilla garrula*) in size and other particulars so closely that they might easily be passed off for them. I believe the common counterfeit for *B. garrula* is the egg of the cedar bird (*Ampelis cedrorum*), but on placing one of these beside the former, the difference in size is very considerable. I have had one or two opportunities of examining the most extensive series of waxwings' eggs known, and this particular variety of hawfinch closely resembles them. I think, therefore, it is well to call the attention of collectors to the fact.—*George Dawson Rowley; 5, Peel Terrace, Brighton, October 7, 1867.*

A strange Trap for Swallows.—One day last August a swallow was seen to be caught by the head in the interstices of one of the gilded weathercocks which surmount the towers of this house. Sympathizing crowds of swallows flocked to see it, and in a short time two more were caught in the same way.—*Clifton; Eton College, October 8, 1867.*

Martins and Wagtails.—In reading Mr. Stevenson's excellent work on Norfolk Birds, I was pleased to see that he records what I have often observed before, but had never seen mentioned in any work, viz. the strange antipathy of the pied wagtail to the house martin. Fights between these birds are seen every day here, the wagtail chasing the martin with incredible swiftness. Most people think both are house martins when they see a fight of this kind. The swallow and the flycatcher are also on "cat and dog" terms generally, the swallows bullying the young flycatchers while sitting and waiting for the parent birds to feed them.—*Id.*

Swallows and Martins picked up dead at Aldeburgh.—On account of the frost on Friday night, the 4th of October, swallows and martins were found dead in the streets of this town. On Saturday there was snow and hail.—*E. C. Moor; Aldeburgh, Suffolk.*

Late Swift.—I was told by a friend of mine, Mr. W. Basham, that he saw a common swift flying over the Thorpe Mere, near Aldeburgh, Suffolk, upon the morning of the 24th of September.—*A. Clark-Kennedy; 14, Prince's Gardens, W., September 26, 1867.*

Number of Eggs laid by the Swift.—With reference to the paragraph under the above heading in the 'Zoologist' for September (S. S. 915) I beg to state, for the information of those interested in the subject, that in the middle of June last I took two swift's nests in the church here, one containing two fresh eggs, and the other three eggs hard set upon. This shows that the eggs of the swift are not invariably limited to two. As to the bird never alighting, I have every reason to think that the statement of Mr. Parnell is correct. There are at least ten pairs of these interesting birds which breed in the church here every year, and though I have watched them closely for many seasons I have never yet seen one of them alight, further than clinging to the eaves of the church immediately before entering the nest.—*Marcus Richardson; Portrush, County Antrim, September 17, 1867.*

Hybrid Black Grouse on Bodmin Moors.—On several occasions I have heard of and received specimens of hybrids between the pheasant and gray hen, from the extensive moors between the Cheese Wring and Jamaica Inn, on the Bodmin Moors. It is singular that on these occasions no instance of the black cock has been noticed. My nephew writes me word that, on Tuesday, the 24th of September, his setters came to a stand at a secluded marsh in these moors, and up got a brood of apparently black game: the old gray hen was very remarkable. He shot and sent me a young cock in entire moult, with patches of black, the tarsi *partially feathered*. I have recommended him to let the brood get full feathered, when no doubt, as on former occasions, the tail will appear partially elongated. I have the one referred to by Yarrell as having been in the possession of my father, Dr. Rodd. The specimen referred to as in the possession of Sir W. Call was killed at the same time.—*Edward Hearle Rodd; Penzance, September 26, 1867.*

A Sagacious Hen.—A correspondent writes: On Wednesday a hen was taken from Nantmole to Ynisnewdn, Swansea Valley, in a basket (with a bag over the basket) in the bottom of a cart, the distance between the two places being five miles. On Saturday morning the hen was again seen quietly feeding in Nantmole Farm-yard, having apparently been displeased with her new quarters, and come home to roost."—*From the 'Bristol Mercury,' October 5, 1867.*

Pigmy Curlew at Aldeburgh.—Another pigmy curlew has been shot upon the mere last week, and I saw a fourth, which was shot at, a few days ago, all four specimens occurring within a few days.—*A. Clark-Kennedy.*

Extraordinary Flock of Wood Sandpipers at Rainham, Kent.—On the 26th of July last my brother, G. E. Power, fell in with a large party of wood sandpipers on some marshes near Rainham, Kent, a sudden change of wind on the previous night, viz., from S.W. to N. and N.E., with a deluging rain, having apparently driven these birds out of their usual line of migration. At first he put up but three, one of which he shot, but at the report others rose on all sides, and joining in one large flock flew round and round at some height, continually whistling; their number he estimated at from eighty to one hundred. They soon pitched again, and, dividing into small parties, flew round the ditches like dunlins: he followed them up, and without any difficulty succeeded in obtaining four more; the greater part then crossed a creek to a neighbouring marsh, although many still remained where he first found them. Next morning he only met with one, and after that only occasionally came across a few, seeing the last on the 6th of September. This flock appears to have consisted principally of young birds, but of those which he obtained one was plainly an old one, and had not entirely lost the breeding-plumage, as the worn tail and scapular feathers showed, and proved to be a female. In this specimen the quills are brownish, very different from the blackish brown of the other birds; the whole plumage, too, is of a dirty brown colour with few spots on the back, and these nearly white, not yellowish as in the other specimens. All these birds were in excellent condition and were loaded with fat. I may mention that we had only twice previously met with this species at Rainham, viz., one seen in July, 1865, and a second which I obtained on the 15th of last July on the same marsh where this large flock appeared.—*F. D. Power; Ladywell, Lewisham, October 2, 1867.*

Little Stint and Little Gull at Leicester.—I have just seen two birds which I believe are of very rare occurrence in this country, namely, the little stint (*Tringa*

pusilla) and the little gull (*Larus minutus*). They were both shot in the Abbey meadow, close to the town of Leicester, in January last, and stuffed by Mr. W. Elkington, of that place, who sold them to Mr. Mansfield, of Birmingham, bird's-eye maker, &c., in whose possession they now are. I have a letter from Mr. Elkington containing the names of the two gentlemen who shot the birds, and describing the Abbey meadow as a very large field of grass land, bounded on one side by the canal, and on the other by the "Old Soar;" and in winter time often overflowed with water.—*Thomas Goatley; 4, Strand, Southampton, September 16, 1867.*

Redthroated Diver netted at Penzance.—This morning, in four fathoms water, I caught, entangled in my net, a speckled diver (the redthroated diver in its first year). The bird is in very good plumage.—*Thomas Cornish; Penzance, October 5, 1867.*

Sabine's Gull at Weston-super-Mare.—I have been told that a specimen of this little fork-tailed gull was shot here about the 14th of September. By the description of it given to me it must have been an adult. The shooter of it did not know its rarity, and unfortunately it was not preserved. This makes the third example of this gull which has been obtained on the Weston sands during the last decade.—*Murray A. Mathew; Weston-super-Mare, October 3, 1867.*

Buffons Skua on the Norfolk Coast.—Two male examples of this rare species were shot on the 4th instant, on the beach at Beeston Regis, and passed into my hands for preservation. The first is an adult bird, the stomach containing several feathers, which, on examination, I found it had plucked from its own breast. The second specimen is an immature bird, in the stomach of which I found a solitary beetle, quite soft from the action of the stomach, so that when touched it fell to pieces. The legs and base of the toes are of a bluish slate: in the adult bird they are dusky black.—*T. E. Gunn; 21, Regent Street, Norwich, October 9, 1867.*

Piebald Variety of the Common Skua.—On the 26th of September I received, for preservation, a specimen of the common skua from Braughin, near Ware, in Hertfordshire. It was killed by the telegraph-wires near that place. The crown of its head and its throat were mottled with small patches of white feathers.—*Id.*

Storm Petrel in Norfolk.—This uncertain little visitor, after the lapse of several years, has again made its appearance on the Norfolk coast, and apparently in some numbers. I have received as many as three specimens for preservation during the last few days. An adult male was obtained, on the 2nd instant, at Little Fransham, near Dereham; a female, on the 4th, at Beeston Regis, near Cromer; and the third specimen, a male, was picked up dead yesterday (October 8th) on the beach near the last-named place. The first-named was in good plumage; the tips of the wings and tail of the female were apparently slightly worn. All the birds were in very poor condition, and seemingly starved out: a few fragments of insects, some muddy substance and pebbles comprised the entire contents of their stomachs.—*Id.*

Storm Petrel at Cromer.—A storm petrel was picked up on this beach on the 6th instant: it was dead, but quite fresh. The weather has been stormy for several days past.—*T. F. Buxton; Cromer, Norfolk; October 7, 1867.*

Storm Petrel at Aldeburgh.—Six storm petrels were seen flying about near the Orford Lighthouse: two were shot by Mr. Hele, of Aldeburgh, and another by Mr. Greenwood. They are rare birds on this coast, and very seldom indeed shot.—*E. Charles Moor; Aldeburgh, Suffolk, October, 1867.*

Notes of a Naturalist in India. By Major NORGATE.

The White Ant.—This little insect is perhaps the most destructive in the world; its ravages are perfectly marvellous, its numbers countless, and its perseverance undaunted. Unlike the other species of ants, it appears to have no means of offence or defence; it does not sting or bite, and is so tender that a breeze would blow it away and the sun dry it up: it is therefore obliged to make little covered ways of earth, under which it carries on its destructive yet silent work: these tunnels are made of fine earth, mixed with some moisture, perhaps from the animal's own body. Small objects it selects for its food are all covered with this coating of mud, under which it works day and night: trees, beams of houses, boards are generally covered by small tunnels running about like the branches of a tree, joining down to the point from which the insect began its work from the ground. Nearly all the soil of India, unless it is full of salts or sand, appears to be inhabited by the white ant: large trees are destroyed by it; first the bark is eaten off or the roots attacked, then the tree is dug into and tunnelled, some tissues of the woody parts being left, apparently to keep the mass just strong enough to remain together. A piece of wood, or leather, cloth, cotton-cloth, rope, straw, dry grass, even a stick left on the ground, in a few hours will be covered with this mud, and under it thousands of white ants hard at work running up and down their covered ways, some bringing earth from the ground, others eating away the substance, whatever it may be: this is seldom all consumed, some part being always left: the centre of a beam will be eaten all away and the outside shell left, often deceiving the eye as to its soundness. These little demons make no noise whatever, and the only notice given of their presence may be a little earth falling down when the covered ways get too dry. Some idea may be conceived of the damage done by these insects, when it is calculated they cost the Indian Government some £100,000 a year to repair barracks, roofs of houses, bridges, &c., destroyed by them.

There are many stories current in India about the ravages of the white ants which sound rather incredible; for instance, it is said they will eat through a tin box; well, they do not exactly eat through the tin, but they soon cause a hole to come through the bottom of a tin box left incautiously on the ground; they cover the tin with their earthy roads, and either the acid of their bodies or the moisture they use in forming their earth-work rusts and corrodes through. I have

been informed on reliable authority that on one occasion they covered some china-plates and dishes with their earth-works, and that with all the cleaning and rubbing it was impossible to remove the marks left by the edges of their tunnels; it appeared to have affected the glaze of the china: everyone knows that formic acid, made from ants, is very corrosive. They are very fond of books and old papers, and will devour half a book in a couple of days. I have never observed them eating grain or collecting it; in fact, as all their work and proceedings are carried on either in the soil or under their covered ways, it is rather difficult to notice their habits with any degree of accuracy. All the stories about their having working parties, slaves, &c., must be simple conjecture: when the earth is knocked off their work they crawl about, in the utmost confusion, over one another, and if they happen to be on the stem of a tree numbers fall down, and the others retire down below, and soon bring up fresh earth to repair the damage.

The white ant does not affect anything that is subject to movement; thus you will seldom find it attack a door, a gate or the lid of a box, but the door-posts or gate-posts and the bottom of the box are soon eaten. It was supposed that from the vibration caused by the engine going over the wooden sleepers of the railway, these would escape this insect's ravages, but such is not the case; the sleepers of certain kinds of wood are all eaten—the vibration in India is not enough; no doubt with a traffic over them like that of the Great Western they would escape.

This insect throws up large mounds of earth of a cone-like shape, somewhat in appearance like the picture in atlases of the comparative heights of mountains: these cones are all tunnelled through and through with small tunnels, and one or two large shafts, some four inches in diameter, leading from the colony below to the tops of the cones, which are covered over; this earth gets baked so hard by the sun that it is broken through with some trouble. I have seen them in India four feet high, but they are seldom more than a foot or twenty inches high. The nest in a very populous city of the white ant is sometimes four feet in diameter, and filled with stuff like wasps' comb to look at, but made of fine earth and covered outside with some white substance like mould or flour: in one part of this comb is found what is called the "queen ant," which is a maggot with a red head and a white body, sometimes two or even three inches long and the size of a person's finger. I have often dug this out, but never perceived the ants took any care of this "queen of theirs, who is so bloated as to be unable to move; small white ants, about the eighth of an inch long,

are to be seen, but the other larger ants seem to take no notice of them. I have never yet found any eggs in a nest. It is said the only way of getting rid of these pests is to take away their queen; on one occasion, where a very large queen was found in a nest, about eight feet below the surface in a room, this queen was taken away, and the ants all disappeared. In another nest, where I took the queen away, the ants only abandoned a part of their works; this year they are in the same place as numerous as ever. I have great doubts of the white ant caring for the queen, having found this large maggot in the centre of three nests I have opened out: I believe it is the queen, but who her husband is, and why she is some hundred times as big as any of her family, I know not. The queen appears to be blind, able to curl herself round only; the head is shining chesnut-colour, the body dirty white, with six legs near the head, apparently of no use; the body is in ribs, and has a black line on the back across each division, altogether a most repugnant-looking queen, and bearing as little resemblance to her subjects or offspring as possible.

Some birds feed on the white ant in its earthly shape, such as partridges, guinea-fowls and chickens, but other birds do not then eat them much; the acid is too strong. I have seen a woodpecker on a tree covered with these insects, of which he could have caught hundreds, but he took no notice of them, and kept hammering away for some other food. After the first heavy fall of rain, in the rainy season, the white ants come out of their nests by thousands; they are then furnished with two pair of wings, and are nearly an inch long (the white ant is rather more than a quarter of an inch long in its working state). The ants are all about, helping their winged companions out, keeping the hole clear, tugging at a bigger one than usual. This is their swarming time; yet this term is incorrect, because these insects do not keep together; each one flies off on his own account. I have seen four holes streaming forth one continued line of these winged ants: they began to come forth at 11 A. M., and were still doing the same at sunset. This is the time every bird has a feast; many that usually do not eat insects then devour them: kites, hawks, crows, and the common gray squirrel also make a meal of them. The insect comes out of its hole, with some little difficulty, head first, with a good deal of struggling: its wings are shining and new-looking: when free of the hole it spreads these out, and mounts up into the air straight, and keeps hovering about without any apparent object; those that escape the birds, after flying about for half an hour or so, come back fluttering, with their wings on some little pebble, bit, brick or

stick, and in a few seconds all four wings drop off, and the insect then looks like a brown-barred beetle, and moves about at a considerable pace: two are generally together, and one follows the other, in every way conforming to all the movements of the leading one, who goes about right, left, straight ahead, then back all over the ground again, searching very diligently for something, without any success. I have thought that this was a sort of amatory chase, but have seen nothing further take place: without doubt these insects go back into the ground again, for the next day not one is to be seen after a flight. Sometimes these flights take place quite suddenly from the bare face of your room wall, where you had flattered yourself there was not a white ant near; the room becomes so full of them as to be a perfect nuisance; the candles or lamps are put out by their flying into them, and dinner is obliged to be sent away.

This insect is one of the pests of India, nothing is safe from it; it brings down your buildings, when you think they look in first-rate order, eats great holes into your books, which you fancy are dusted every morning (if they had been the ant would not have come); it eats your carpet nearly through, which to outward eyes looks all right; destroys your tents, which you hope will be ready for the cold season; eats up the stock of your gun, if not looked to every day; honey-combs your shining chunam-floor, as hard as china, and which you think it is impossible for any insect to get through. There appears no cure for this plague; it does not like sand or saltish earth, and has a great aversion to wood-ashes, which when fresh have the effect of bursting and drying up the white ants; the potash has some effect on the acid of the insects: the only way to prevent a tent being eaten is to place fresh ashes under the sides. These insects *must* have direct communication with the ground; thus if you cut off communication effectually from the ground round a tree attacked by them, the earth-work becomes dry, and the ants dry up also in a few days. Their work is done quickly; if the top of one of their cones is knocked off it will be covered all over again in a few hours; the little workmen begin putting the earth on the sides, and gradually lessen the space until the dome is completed. I have not been able to discover that extraordinary order and arrangement with this species which is quite visible with many other kinds of ants, for the reasons already mentioned; however, entomologists declare they possess the same habits: how they have found this out seems difficult to know.

There are several kinds of wood the white ant does not touch, *viz.*, green fir or cedar, dry mahogany, black wood (of which the Bombay

furniture is made), babool (*Acacia spinosa*), umultas (*Acacia fistula*), the banian and peepul (*Ficus Indicus* and *F. religiosa*), and a few others. Although no colony or city of white ants is visible anywhere near, still they make their appearance in one night under any piece of dry wood or leather thrown on the ground, and oftentimes the earth is covered with their branched tunnels, so that it would appear the earth is full of them, unconnected with their cities, which may be only their breeding-places. There must be some very quickening process in the state of the atmosphere when the rain falls, as the winged ants look much too fresh and new to have been born even a few hours before they make their exit from the earth, which takes place at the same time all over the country where the rain has fallen. If it were not for the very many enemies the white ants have at their flight-time—every kind of bird, spiders, frogs, toads, lizards all pitch into them—they would increase in such numbers that not a tree would grow in many parts of India. The black ants take off numbers of them to their nests. I have timed them carrying off the winged white ants at the rate of eighty and eighty-three a minute.

T. F. NORGATE.

Sealkote, Punjab, August 27, 1867.

NOTICES OF NEW BOOKS.

'*Letters Home from Spain, Algeria and Brazil, during past Entomological Rambles.*' By the Rev. HAMLET CLARK, M.A., F.L.S. 178 pp. demy 8vo, and two coloured lithographs. London: Van Voorst. 1867.

THIS work required a short introductory chapter, which the surviving brother or some friend of the lamented author might readily have supplied. As it is the work comes before us in a crude and therefore unsatisfactory state. The objection, however, disappears as we turn the pages and accompany Mr. Clark in his wanderings, and a very pleasant companionship it is. The title defines with sufficient accuracy the countries visited; and the information respecting them is imparted in letters addressed from time to time to friends at home, —one to Dr. Power, two to myself, and all the others to a beloved father. They abound in kindly feeling and a keen appreciation of the beauty of the natural objects which continually presented themselves. There is a buoyant and unvarying determination to enjoy exhibited in almost every page, and this is combined with a just and intelligent appreciation of all the author saw.

The most faithful as well as most favourable idea of this little volume will be conveyed by means of a few quotations, selected as bearing more particularly on Natural History. The first is a passing note on the apes at Gibraltar, concerning which we are and have been in a state of almost absolute ignorance. I presume my readers to be acquainted with what has already appeared on the subject of these apes in the 'Zoologist' (Zool. 1292 and 7985), and therefore the passage cited below requires no comment.

"The peculiarity of the Natural History of the Rock (in which alone I am really interested) consists in its monkeys. A large tribe of the Barbary ape (becoming as they say less and less numerous) inhabits the high inaccessible crags; they seldom are seen except in severe weather: in *very* bad weather they have been known to come down and steal. I wonder how they got there! where from? and when? This is the only spot in the whole of Europe where they are found. No doubt they have come from the south, from Africa—just as, of the many insects we find common to both sides of the Mediterranean, some have come from south to north; but *how* and *when* are mysteries to me, or why, when they got to Gibraltar, they did not occupy some of the Sierras also; this is a puzzle."—p. 29.

It will, I think, appear from the next quotation that Ventnor, so celebrated for its pulicine population, is altogether eclipsed by Algiers, which seems a very paradise, or as the venerable Kirby would have called it, "the metropolis" of fleas.

"June 13. Our night has been one of misadventures to each of us; by day we prey upon insects, by night insects prey upon us. We have a splendid invention to resist their attacks, we call it a "flea-bag"—simply two thin sheets sewn together round three of the sides, and capable of being drawn up tight with a strong tape through a well-sewn hem on the fourth; we get into our bags, draw the string tightly round the neck fasten it from the inside, and if we are cunning we are safe, except on neck and face; but there, alas! whole squadrons of light cavalry assail us, and they find their way through the creases of my tightly drawn bag; they prevent sleep, they promote fever and thirst, and in the morning offer themselves an inglorious prey to my righteous wrath."—p. 57.

The Zoology and Botany of San Theresa, in Brazil, seems to have proved exceedingly gratifying to our travellers, and a brief quotation will intervene agreeably between two less seductive paragraphs.

"You have no idea of the gorgeous *tout ensemble* of the living forms that we meet with on our walks; butterflies in profusion with the richest or most dainty or most quaint colours; beetles like precious stones for brilliancy; bugs and flies grotesque, and of all hues; ferns

lovely (one hundred and twenty-one different species are found in one single locality, S. Theresa hill, the scene of our first walk); palms, cocoa-nuts, flowers, orchids, flowering trees of all forms and hues and scents! and all these not as in an English greenhouse, single gems in the midst of mere ordinary woodlands, but the component parts of a vast expanse of forest scenery, each individual item of which is just as beautiful as they! I cannot describe it; I can only (as I often do) just sit down in the midst of it all and look and think and feel it."—p. 110.

"It is nearly eleven o'clock at night. Gray has been in his room an hour; I am sitting writing in the airiest of apparel at an open window, the fireflies are gleaming in the dark like stray atoms or sparks of animated sunshine; the mosquitos are (thanks, perhaps, to the open window, only it is so deliciously cool) in heavy clouds and full chorus of harmonies (not all unisonous) round my lamp; cockroaches as big as mice are racing noisily across the Indian matting; strange sounds come to my ears from the distant forests, fleas are biting me, and every now and then a flop against the lamp announces the visit of a beetle. What can mortal man enjoy more?"—p. 111.

The following sketch of the effects of a Brazilian sunrise at Barrera is very delicious, and makes one long for a sight of tropical nature in its home: alas! how different from what we see of it when transferred to our own dull clime!

"Then the glorious sun came out! and the whole valley in one instant woke up to reply to his greeting—everything laughed with brightness; trees got up a little crisp fresh rustling in their foliage, flowers brought out their brightest colours, bushes and vegetation all at once dressed themselves in gorgeous suites of countless diamonds; even the spiders' webs, with their geometric tracery, are decked with diamond drops; one or two sensible, sober-minded little mites of ants came out from under a twig, where they had been belated last night, just like ourselves, and, sunning themselves in a cozy nook, stretched their limbs and combed out their antennæ; and in the midst of this fairy land wandered a happy mortal with a glass tube in his fingers, picking up from bush and flower pretty little beetles, pleasant souvenirs in after days of a wretched resting-place, reconciled again to existence, and thinking how strange it is that man at his lowest estate can mar the most lovely scenes of nature, and that man at his highest estate can make the wilderness blossom as the rose."—p. 117.

I must conclude these extracts with one about "ants," which shows that these creatures are as diverse in their dispositions and propensities as man himself.

"The ants abound! Brazil is one great ants' nest! they are of all sizes and dispositions: some are a plague to us in the house, for they will come at nights and prey on the insects in our store-boxes; some are

a plague to us in the forests, they get inside one's clothes and bite and sting; others are a more serious evil still, vegetable-feeders, which will take a fancy to the leaves of some tree, and strip every leaf off in one night! I could not imagine why Heath had a broad, deep, ugly ditch running all round his vegetable garden, when a neat rail would keep out mules quite as well, until he explained to me it was in the somewhat vain hope of keeping the ants out of the garden; he confessed that it had hardly any effect at all. There is one species celebrated for its mining propensities; not only does it live underground, but it delights in making tunnels leading in every direction, to nowhere at all, two or three feet below the surface: a few years ago they took possession of a cleared hill near the house, and prospered so that last year Heath and his slaves made vast efforts to reduce the nuisance; they got gunpowder and brimstone and other slow-burning nastinesses, and tried to smoke them out: the means were effective enough in one sense, for all up and down the hill-side fifty or a hundred yards from the great orifices, little threads of white smoke kept rising up, showing that the whole slope was tunnelled: this year the ants are worse than ever. The only effective remedy, as it seemed to me, would be to let in small streams of water from the top towards the base, instead of currents of smells from the base towards the top; but of course springs of water are rarely found near the tops of hills, and so they escape death by drowning.

"There are some long-jawed fellows that attack you by a jump, not by a spring of their legs but of their backbone (only they have none); they can fling themselves about a foot, and live under fallen timber and such places; they are not so cruel as the little ones. The *small* species are my terror; their stings are like red hot needles, and they do it with such a savage will! First they get firm hold with their jaws, then they get other purchases with their feet, and then like lightning they arch back their bodies and drive, with all the powers of body and legs, their stings in to the very hilt! and so cunning and hostile are they, that they do not, like some others, keep hold with their mouths, thus making only one red mark in the skin, till they are picked off; much less do they run off having done their duty, but they go, say just two inches forward, and then go through the stabbing process again. On one occasion I was in very great trouble; inadvertently I stood for a moment examining the contents of my net in the midst of their run—a forage expedition of the whole tribe. I did not see them, nor indeed did I look, so intent was I on my precious beetles; when all at once I felt their stings over a great part of my body; the whole legion had walked up my boots! the pain was really dreadful! But happily when I had changed my quarters, and thrown off in desperation half my clothes, a slave youth came by, who helped me to pick the wretches off my body and clothes, and to get in order again: since that adventure I have always been careful not to interrupt the social migrations of ants."—p. 131.

Hippocampus or *Sea Horse*.—A number of this curious fish are now in the possession of Mr. G. H. King, 190, Great Portland Street; and all who wish to embrace so favourable an opportunity of seeing them alive, and noting their singular form and motions, should do so without delay. Mr. King obtained them from the coast of the South of France, where he captured them himself. He has about a dozen living in one of his large tanks, where every motion can be seen with the greatest facility. I have spent some time in studying their singular habits, and have watched them with the greatest interest. There is no need to describe this curious member of the family Syngnathidæ, nor have I time to do so, but I wished to call the attention of the readers of the 'Zoologist' to an opportunity so rarely to be enjoyed.—W. J. Sterland; 350, Gray's Inn Road, S.W., October 21, 1867.

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